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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/681,027

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BAUCKMANN-1

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EXAMINER

CHANG, LI WU

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/681,027	<b>Applicant(s)</b> BAUCKMANN, OLIVER	
	<b>Examiner</b> LIWU CHANG	<b>Art Unit</b> 2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/08/2003; 12/22/2003</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

1. Claims 1-12 are pending.

***Specification***

The title of the invention is not descriptive. The scope of title "management tool" is too broad and ambiguous to include arbitrarily many areas that are not related to and/or covered by the present invention. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 6, 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Markham** et al. (US Patent No. 7035877 B2), hereinafter Markham, in view of **Negishi** (US Patent No. 5444819), and hereinafter Negishi.

3. With respect to claim 1, Markham discloses a method for computer-supported evaluation of key company figures (not further defined, reads on e.g., event data, Col. 2; PIPE data, Col. 13, lines 55-57; or Col. 17) in a management process (**Markham:** Col 7, lines 10-14, "Data ... for functional tracking, production management ..."), comprising the following steps: collecting and storing key company figures in a database (**Markham:** PIPE database, Col. 15; Col. 11, line 66-Col. 12, line 67; Col 2, lines 15-63 and Col 13, lines 10-12), in the form of time series (**Markham:** Col 17, lines 42-44), wherein at least some of the key company figures are determined by means of repeated employee or customer surveys (**Markham:** e.g., Col 13, lines 1-19, "... source of data ..." "... from surveys of users ...").

Markham fails to particularly call for "statistically evaluating" (not further defined) the time series stored in the database, using an artificial neuron network.

Negishi, teaches said statistically evaluating the time series stored in the database, using an artificial neuron network (**Negishi:** see e.g., Abstract, "... time series data indicating economic phenomena are ..." "... using a neural network ...").

Time series is also a data type of Markham (Col 8, line 48). It would have been obvious for one skilled in the art at time of invention to incorporate the teachings of Negishi with the teachings Markham by including time series data as input to the neural network because neuron/neural networks are notoriously well known and annual reports or surveys of users are time series data stored in the PIPE system of Markham.

4. With respect to claim 2, Markham discloses wherein the employee or customer surveys are conducted interactively, by way of a data network (**Markham:** Col 13, lines 6-12, "... to register a complaint (e.g., data logged by a customer service ..." implies an interactive way with a data network).

5. With respect to claim 3, Markham discloses wherein the neuron network is trained with the key company figures stored in the database, to allow a statistical evaluation (**Markham:** Figure 7, component 70, information from "PIPE database" is sent to component 168, neural network).

6. With respect to claim 4, Markham discloses wherein the neuron network is trained with a training pattern that can be predetermined (**Markham:** Col 8, line 60 and Col 13, line 1, "... PIPE ..." and "... source of data ..."), said training pattern comprising a first set of time series of key company figures as input data (**Markham:** Col 8, lines 48-50) and a second set of time series of key company figures as target data (**Negishi:** Col 15, lines 24-26, "TOPIX", the Tokyo stock index is a time series).

7. With respect to claim 6, Markham discloses wherein cause and effect relationships between the key company figures are automatically determined based on results of the training ((**EN**) **Markham:** Col 8, line 48, "time series", wherein it is obvious that the time series trained neural network can be explained by interaction of the cause and effect relationships between the key component figures).

8. With respect to claim 11, Markham discloses a system for computer-supported evaluation of key company figures in a management process (**Markham:** Col 7, lines 10-14, "Data ... for functional tracking, production management ..."), comprising the following components:

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a database connected with a data network (**Markham:** Figure 1), for storage of time series of key company figures (**Markham:** Col 2, lines 15-16, Col 13, lines 10-12, and Col 17, lines 42-44), a control client connected with the data network (**Markham:** Figure 9), said control client comprising programming for interactive control of collection (**Markham:** Col 13, lines 3-5, "... producers of customer products ... maintain one or more databases of information obtained from users ..." implies the interactive control of collection) and evaluation of the key company figures and storage of the key company figures in the database (2) (**Markham:** lines 12-20, "... identify possible relationships between operating conditions and customer complaints ..." imply evaluation and storage of figures in the database); and

an evaluation server also connected with the data network, said server accessing the key company figures stored in the database (**Markham:** Abstract, lines 22-26, "... database on a server for recording event parameters obtained by the data logger, and a reporting system cooperatively associated with the database ..." implies the access to the figures in the database).

Markham does not disclose having programming for statistical evaluation of the time series when using an artificial neuron network. Negishi however discloses having programming for

statistical evaluation of the time series when using an artificial neuron network (**Negishi**: Abstract, lines 1-2, "... time series data indicating economic phenomena are ..." "... using a neural network ...").

Time series is also a data type of Markham (Col 8, line 48). It would have been obvious for one skilled in the art at time of invention to incorporate the teachings of Negishi with the teachings Markham by including time series data as input to the neural network because management reports and user surveys are time series data collected in PIPE database to be analyzed against target quality data.

9. With respect to claim 12, Markham discloses wherein the control client also has programming for conducting employee or customer surveys by way of the data network (**Markham**: Col 13, lines 3-12, "... maintain one or more databases of information obtained from users of products ...").

10. Claims 5, 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Markham**, in view of **Negishi**, as applied claim 1 above, further in view of **Chung** et al. ("Performance Comparison of Several Feature Selection Methods Based on Node



Pruning in Handwritten Character Recognition," IEEE 1997, pp 11-15.

11. With respect to claim 5, the claim is rejected for the same reason as in claims 1 and 4 above. In addition, Negishi discloses the output data of the neural network and the target data (Negishi: Abstract, lines 13-16, "... TOPIX ...").

However, the combined teachings of Markham and Negishi do not disclose wherein success of the training is evaluated using an overall error of the neuron network, which error reflects a deviation of output data of the neuron network from target data of the training pattern.

Chung discloses wherein success of the training is evaluated using an overall error of the neuron network, which error reflects a deviation of output data of the neuron network from target data of the training pattern (**Chung**: section 2.1, EQ(1) describes the error function in the neural network classifier and the computation of the total error).

It would have been obvious for one skilled in the art at the time of invention to incorporate the teachings of Chung with the teachings of Markham and Negishi by including the error-based node selection method for dimensionality reduction, because such

a method could leverage the complex quality management in event-based product manufacturing.

12. With respect to claim 7, the claim is rejected for the same as claim 6 above. The combined teachings of Markham and Negishi do not disclose wherein for the purpose of detecting cause and effect relationships between input data and output data, the strength of a tie between input neurons that have the input data applied to them, and the trained neuron network, is evaluated. Chung, however discloses wherein for the purpose of detecting cause and effect relationships between input data and output data, the strength of a tie between input neurons that have the input data applied to them, and the trained neuron network, is evaluated (**Chung:** the weight, the sensitivity and saliency measures, as in section 2.1, reflect the influence of an input node to the output, which imply the strength of tie).

It would have been obvious for one skilled in the art at the time of invention to incorporate the teachings of Chung with the teachings of Markham and Negishi by including the error-based node selection method for dimensionality reduction, because such a method could leverage the complex quality management in event-based product manufacturing.

13. With respect to claim 8, the claim is rejected for the same as claim 6 above. The combined teachings of Markham and Negishi do not disclose wherein for the purpose of detecting cause and effect relationships between input data and output data, at least one input neuron to which input data are applied is uncoupled from the trained neuron network, and a test variable is evaluated, said test variable reflecting influence of the uncoupling on an overall error of the neuron network.

Chung, however discloses wherein for the purpose of detecting cause and effect relationships between input data and output data, at least one input neuron to which input data are applied is uncoupled from the trained neuron network, and a test variable is evaluated, said test variable reflecting influence of the uncoupling on an overall error of the neuron network

(**Chung:** section 2.1, the 3<sup>rd</sup>-9<sup>th</sup> lines below EQ(1), "... the amount of increase in the cost ... if the node or the weight is removed from the network ..." implies at least one input neuron to which input data are applied is uncoupled from the trained neuron network, and "... the lowest value of Saliency or Sensitivity ..." implies the evaluation of influence on an overall error of the neural network).

It would have been obvious for one skilled in the art at the time of invention to incorporate the teachings of Chung with the teachings of Markham and Negishi by including the error-based node selection method for dimensionality reduction, because such a method could leverage the complex quality management in event-based product manufacturing.

14. With respect to claim 9, Chung discloses wherein a plurality of values of the test variable is calculated by systematically uncoupling from the neuron network input neurons to which individual key company figures of the first set of the training pattern are assigned (**Chung:** section 2.1 and EQ (1)-(8) describe the systematical calculation of the performance metrics, Saliency and Sensitivity, of uncoupling node one by one, because "... they select the lowest value ...").

15. With respect to claim 10, Markham discloses wherein the plurality of values of the test variable is visualized, for the purpose of evaluating influence of key company figures of a first set on key company figures of a second set (**Markham:** Col 23, line 5 and lines 22-24, "Data mining techniques applied to the process information databases provide an excellent method of uncovering non-obvious yet highly correlated events to suggest

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process modifications ..." and "data visualization" imply the values of test variable from calculation is visualized).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIWU CHANG whose telephone number is 571-270-3809. The examiner can normally be reached on 8:30AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on 571-272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. C./

June 08, 2008

Examiner, Art Unit 2142

/David R Vincent/

Supervisory Patent Examiner, Art Unit 2129